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## United States Department of Agriculture,

## BUREAU OF PLANT INDUSTRY,

WASHINGTON, D. C.

AGRICULTURAL CONDITIONS IN SOUTHERN  
TEXAS.Work of the United States Department of Agriculture—  
Advice on Going into Orange Growing—Needs of the  
Region—Plans for Aiding Farmers.

At a meeting held on February 20, 1909, in the office of Dr. B. T. Galloway, Chief of the Bureau of Plant Industry, United States Department of Agriculture, the agricultural situation in southern Texas was informally discussed, with a view to formulating plans whereby the Department can aid and advise the farmers and settlers in that region. The meeting was called primarily to hear from Prof. E. C. Green, who is in charge of the Department's garden at Brownsville, an account of the progress of the work at the Brownsville garden since its establishment a year and a half ago and to learn the views of Professor Green, as well as of the other gentlemen present, regarding the possibilities of southern Texas in agricultural and horticultural industries. On the invitation of the Chief of the Bureau of Plant Industry, Hon. A. S. Burleson, Hon. J. N. Garner, and Hon. J. M. Moore, representing, respectively, the Tenth, Fifteenth, and Eighth Congressional Districts of Texas, were present at the meeting and took part in the discussion. Various officers of the Bureau of Plant Industry were also present, particularly those engaged in pomological and horticultural work in the South.

In his prefatory remarks Doctor Galloway stated that the main object of the meeting was to learn from Professor Green the existing conditions in southern Texas, particularly in the region surrounding Brownsville, and to obtain all possible information regarding the extensive movement in southern Texas in the planting of orange trees. Many people are going into the orange business, and numerous letters have been received by the Department from people in southern Texas who are planning to invest in this industry under the guidance and advice of

real estate operators in Texas. The Department should be in a position to advise these people in a fair and disinterested way, and it is important that plans be immediately formulated by which the people in the region may be informed of the actual prospects for a successful orange industry or for any other agricultural pursuit upon which they are planning to embark. The Department has received proposals from many people in Texas for cooperative arrangements in the establishment of demonstration farms at various points. The important question is just what action the Department should take to aid the settlers who are being brought into southern Texas through exploitation and propaganda work by those who are interested in the sale of lands.

Doctor Galloway stated that the asking of questions and the offering of suggestions by those present would be in order.

#### **WORK AT THE SOUTH TEXAS GARDEN AT BROWNSVILLE.**

Professor Green described briefly the character of the work now going on at the Brownsville garden and its development during the eighteen months of operation. The garden was started on the old abandoned military reservation at Fort Brown, and about 45 acres are now under cultivation. The soil has been brought into good condition, and at the present time about 2,000 different varieties of plants, seeds, shrubs, and trees are being tested to determine their adaptability to the region. Most of these plants have been brought in from foreign countries in connection with the work of the Office of Foreign Seed and Plant Introduction. They are now being tried with a view to the elimination of those of no promise and the dissemination of such of them as indicate value for the region around Brownsville. Some of these plants, especially bamboos and date palms, have already been placed with co-operators in the vicinity of the garden. Considerable attention is being given to the testing of grape varieties, and a complete series of vegetable tests is also being carried on. Much of this work serves a demonstrational purpose, and the garden is frequently visited by farmers for the purpose of observing the experiments and securing information which will be helpful to them. Experiments in onion culture are under way and appear to indicate that onions can be produced in southern Texas by planting the seed direct in the field, which can be done at much less cost than by the usual practice of planting in a seed bed and then transplanting. The culture of onions is increasing in southern Texas.

#### **PROPOSITIONS FROM TEXAS PEOPLE FOR THE ESTABLISHMENT OF OTHER GARDENS.**

The results of the work at Brownsville will be applicable to a large portion of the valley of the Delta. Many requests have been received from other parts of southern Texas for the establishment of cooperative gardens, notably at Kingsville and at South Houston. At the latter



point an offer of \$12,500 and all land necessary has been made, and at Kingsville 80 acres have been offered to the Department for experimental work.

It is necessary to proceed cautiously with these matters, however, and for a variety of reasons: (1) The present station at Brownsville must be brought to an effective state of development before work at other points can be arranged. Attention is now being concentrated on the Brownsville garden, and the experience there gained will be of great value in planning work elsewhere. (2) The establishment of definite gardens at various points has the effect of binding the Department to work at those points, even though the preliminary experiments prove that the locations are unsuited for demonstrational purposes. All of these matters are now being given careful consideration by the Department.

### **THE PRESENT STATUS OF ORANGE GROWING IN TEXAS.**

The important question of the present movement in Texas toward the establishment of the orange industry in that State was discussed from several different viewpoints at the meeting. Professor Green, replying to an inquiry of Mr. Burleson, stated that several varieties of orange trees are now growing at the Brownsville garden, including the standard sorts, navels, etc., and in addition grapefruit, lemons, and the new fruit called the citrange are being grown in an experimental way. The plantings of people around Brownsville have been observed, as well as those in the Houston district. Cooperative arrangements have been made with growers at Alvin, Edna, Beeville, Corpus Christi, Sarita, and other points. A great many inquiries regarding orange planting have been received at the garden, and efforts are being made to help the growers as far as possible. The behavior thus far of the oranges planted at the garden appears to indicate that the Trifoliata stock is not well adapted to Brownsville conditions, while the sour stock makes a vigorous, healthy growth, but is tender. The climatic conditions at Brownsville seem adverse to certain varieties of oranges. The Satsuma variety on Trifoliata stock, however, has indicated hardiness, having withstood at Victoria a temperature of 22° F. without injury.

### **THE SATSUMA ORANGE.**

It has been stated that there are now planted in Texas no fewer than 1,000,000 orange trees, of which a large portion are Satsumas planted during the past year or two. This figure may be exaggerated, but at any rate it is evident that large numbers of people are going into the orange business, planting chiefly the Satsuma variety, which is a short-season mandarin orange, small, rather flat, and thin skinned, ripening in October and November. Many growers are reporting successful results with the Satsuma. One of the largest orange orchardists in

southern Texas has stated that from an acre of old trees he secured \$800 worth of fruit in 1907 and \$1,000 worth in 1908. From his 3-year-old trees, covering 8 acres, he has taken five dozen oranges, or about one box, to the tree, the fruit selling for over \$2 a box. He claims to be able to offer visible proof of the success and safety of orange growing in southern Texas.

The Department is giving careful attention to the matter of orange growing in southern Texas, and for this reason the views of several of its experts regarding the Satsuma variety may prove of interest.

### **SATSUMA ORANGES IN NORTHERN FLORIDA.**

Mr. David Fairchild, of the Bureau of Plant Industry, stated that he had made inquiries regarding the Satsuma orange in northern Florida, both from growers and from the Department's agent there. Regarding the value of orange lands in Florida, a resident of the Manatee region who is thoroughly familiar with conditions there has stated that 8-year-old orchards of the best commercial orange varieties, in the pink of condition, composed of trees which have never had a leaf touched by frost, can be bought in his section to-day for from \$1,200 to \$1,500 an acre; further, that no one in the Manatee region is planting the Satsuma and that many growers who already have trees of that variety in their orchards do not take the trouble to pick the fruit.

As opposed to these views, statements have been made to the Department by persons interested in the sale of lands in Texas that 8-year-old orange orchards in Louisiana are paying from \$600 to \$800 per acre and that few orchards at that age could be bought for \$5,000 per acre. Thus it will be seen that there is a great difference of opinion regarding the value of orange orchards in the South.

The agent of the Department in Florida was asked to make a report on the question of growing the Satsuma there. He stated that the Satsuma is losing its popularity among the growers to a large extent and is being replaced wherever the climate permits by the standard orange. The market for Satsumas is one that is easily overloaded. The public looks upon them more as a curiosity than as a steady article of diet, and if it were not for the kid-glove feature there would probably be no demand for them. The prices are much lower than they were in Florida some years ago, presumably on account of overproduction. The quality of the fruit is far inferior to that of the ordinary oranges.

### **THE OUTLOOK FOR SATSUMA ORANGE GROVES IN AMERICA.**

Mr. William A. Taylor, Pomologist in Charge of Field Investigations in Pomology of the Bureau of Plant Industry, replying to an inquiry, stated his opinion on the prospect of obtaining a reasonable profit from Satsuma orange groves in this country. Mr. Taylor prefaced his remarks by stating that the Satsuma, notwithstanding the long period during



which it has been grown in this country, both in Florida and in California, has not yet reached a real carload basis in either State. There has never been a sufficient demand for the fruit in the market to justify plantings that would produce carload quantities. Occasionally a carload is shipped, but as a rule the Satsumas are in patches, a few trees here and there. They are edible during a short season, but the really palatable period of the Satsuma is very brief. It is early and there is some demand for it in northern markets and near the points of production, but the planting of large orchards in the expectation that fruit of that quality would compete with the large quantities of better fruit now coming forward would, in Mr. Taylor's judgment, be exceedingly unwise.

Very few of the Satsuma trees in Texas survived the severe frost of 1899, and the question of climate should be seriously considered in connection with the establishment of orange groves in that State. Many growers fail to realize that another freeze as serious as that of 1899 would prove very disastrous to a new citrus industry.

#### THE PROSPECTIVE MARKETING SITUATION.

At the suggestion of Mr. Taylor, Mr. G. Harold Powell, Pomologist in Charge of Fruit Transportation and Storage Investigations of the Bureau of Plant Industry, outlined the marketing conditions which would have to be met in the development of a Texas citrus industry. Through his work Mr. Powell is in very close touch with the marketing situation in California and Florida and the prospective production from the trees that are now coming into bearing in those States.

Mr. Powell stated that about 25,000 carloads of oranges are shipped from California in a year, of which about 5,000 cars are the Valencia Late, a very fine keeping and appearing variety, the shipping season of which extends from June to October and even to November. The prospective shipments from the plantings of Valencia Late already made are not less than 10,000 carloads. The plantings of this variety are exceedingly heavy both in southern California and in the Tulare district. On account of improved methods of handling and storing, the Valencia Late this year lasted into December.

The Satsuma orange from Texas would compete with the early Florida fruit and also with the Valencia Late from California. It is an edible orange for only a short time, and would therefore be at a disadvantage in competition with fruit of better quality. The Satsuma is not grown to any extent in California because it is not worth growing there.

Another important competitor of the Satsuma from Texas would probably be the Washington Navel from the desert country in the Imperial Valley of California and the Phoenix district of Arizona. This orange, which is the finest commercial orange we have in the country, is being planted extensively in those sections and will ripen there at

the same time the Satsuma will ripen in Texas; that is, the latter part of October. The Valencia Late from California would hold over and affect the early Satsuma market, and the first ripening navels would come in about the middle of the Satsuma season.

The Satsuma is like the tangerine orange. If the shipper attempted to ship tangerines in carload lots they would swamp the market, so he puts a few boxes of them in a carload of navels. The tangerine is a very delicious orange, somewhat of the Satsuma type, a little more tart, but no tangerine grower would think of trying to put many carloads of tangerines in even the New York market at one time.

Assuming that 2,000,000 boxes of Satsuma oranges, as has been stated, can be produced in Texas, it is almost certain that as a commercial proposition there would be very little outlet for fruit of the Satsuma type. The California orange business is one of the most effectively organized agricultural industries in the United States. The citrus business in California is handled through the best fruit-distributing agency in the country, and even if the Satsuma can be grown in Texas and is a good edible orange the key to the situation is the ability to get it on the market at a profit. Unless the conditions in Texas are favorable to effective cooperation and organization, the establishment of orange growing on a large scale would be an exceedingly precarious enterprise.

#### SATSUMA ORANGES IN JAPAN.

Replying to an inquiry of Mr. Burleson, Mr. Fairchild stated that some very good oranges are grown in Japan, the Satsuma being one of the leading varieties. The taste of the Japanese for fruit, however, is very different from ours, for they do not care for the sweet fruits as we do. For instance, one of the greatest crops they have is their sour plum crop—plums so sour that we would not eat them. Their bitter oranges and their peaches and nectarines have not the flavor of our American fruits. To say, therefore, that because the Satsuma orange or any other crop is a popular one in Japan it will be found so in this country is a fallacious argument.

Mr. Burleson read a statement of a Japanese importer of orange trees into Texas, which in substance claimed that the conditions in Texas are more favorable to the Satsuma than they are even in Japan.

Mr. Fairchild continued, saying that he had made a special trip over the west coast of Japan and through the orange belt of that country. The orange industry, as an industry, is situated south of Yokohama, where there is seldom enough frost to amount to anything. There is a small orange belt on the west coast where there are occasionally light frosts and falls of snow and where are built special mats, as is done in Sicily and Italy, to protect the trees from frost and snow. This requires a large amount of work to protect a single tree. The winters in Japan are not marked by sudden changes in temperature such as occur in



Texas, but are mild and humid with occasional falls of snow. This does not at all indicate a condition similar to that of southern Texas, where the days are alternating warm and cold. The region in Japan where citrus fruits are chiefly grown is south of the line of freezes. Tokyo even, where citrus culture is not thought of as a paying possibility, has a minimum temperature of 15° F., and during a period of ten years it only went down to 20° F.

#### **WHAT THE DEPARTMENT CAN DO TO AID THE PEOPLE OF SOUTHERN TEXAS.**

Doctor Galloway brought the meeting to a conclusion by stating that the whole situation regarding the citrus industry in Texas may be summed up by quoting from a correspondent, who says:

It is not a matter of the Department of Agriculture lending any encouragement to the exploits of land men. It is a matter of the Department of Agriculture taking cognizance of an established industry already running into investments of millions made by thousands of people from all parts of the United States.

In other words, there has been developed in southern Texas for various reasons and from various causes a sort of speculative desire on the part of the settlers to take chances in the growing of the Satsuma and other varieties of oranges. Now the Department of Agriculture should make investigations and do its best to help the people to handle the responsibility they have already taken upon themselves. As before stated, several offers of land for experimental work have been made to the Department, but this plan is not believed to be the best one under the circumstances. A more feasible plan and the one which will be carried out will be, first, to begin at once an educational propaganda to let the people have the best information the Department possesses regarding the problems which confront them. To this end copies of the report of this meeting will be distributed among the people of southern Texas. In addition, Professor Green, when he returns to Texas, will make a survey of the whole section in question with a view to finding out just what has taken place there. It will also be advisable to send another officer of the Department to go over the ground independently, in order to obtain two points of view of the situation. As soon as these officers make their reports their findings will be published in circular form and distributed for the benefit of the people who have invested or are thinking of investing money in that section. These publications will not be made with a view to discouraging any legitimate business, but for the purpose of stating the actual facts as they are found. After this, the second step will be to arrange, through Professor Green, to have some cooperative testing and experimental work undertaken with a sufficient number of individuals to ascertain fairly

representative conditions throughout the entire section, both as to soil and climate. This will mean several years' work. Meanwhile the advisory propaganda will be continued.

The information published will also be placed in the hands of the Representatives in Congress from the southern Texas districts for the purpose of answering the inquiries of their constituents.

A study of the experience of farmers throughout the section will also be made in connection with the work of the Office of Farm Management of the Bureau of Plant Industry, and the results of this study will be disseminated among the people of the region. In this way and through the work just outlined it is believed that the Department can do much to aid the settlers and farmers in southern Texas.

#### TEMPERATURE RECORDS FOR SOUTHERN TEXAS.

The following records of the Weather Bureau as to the lowest temperatures during the months of December, January, February, and March at points in southern Texas for a period of years may be of interest in connection with the facts stated herein. At Houston, during a period of fourteen years, the lowest temperatures were: December,  $15^{\circ}$  F.; January,  $18^{\circ}$  F.; February,  $6^{\circ}$  F.; March,  $23^{\circ}$  F. At Galveston, during thirty-seven years: December,  $18^{\circ}$  F.; January,  $11^{\circ}$  F.; February,  $8^{\circ}$  F.; March,  $30^{\circ}$  F. At Columbia, during fourteen years: December,  $18^{\circ}$  F.; January,  $19^{\circ}$  F.; February,  $5^{\circ}$  F.; March,  $30^{\circ}$  F. These three points form the "northeast coast group." In the "central coast group" the lowest temperatures were as follows: Danevang, during twelve years: December,  $5^{\circ}$  F.; January,  $19^{\circ}$  F.; February,  $3^{\circ}$  F.; March  $28^{\circ}$  F. Victoria, during eight years: December,  $20^{\circ}$  F.; January,  $6^{\circ}$  F.; February,  $9^{\circ}$  F.; March,  $31^{\circ}$  F. Beeville, during thirteen years: December,  $14^{\circ}$  F.; January,  $19^{\circ}$  F.; February,  $5^{\circ}$  F.; March,  $24^{\circ}$  F. In the "southern coast group" the records are: Corpus Christi, during twenty-one years: December,  $20^{\circ}$  F.; January,  $16^{\circ}$  F.; February,  $11^{\circ}$  F.; March,  $28^{\circ}$  F. Brighton, during fifteen years: December,  $23^{\circ}$  F.; January,  $21^{\circ}$  F.; February,  $7^{\circ}$  F.; March,  $35^{\circ}$  F. Brownsville, during sixteen years: December,  $15^{\circ}$  F.; January,  $18^{\circ}$  F.; February,  $12^{\circ}$  F.; March,  $28^{\circ}$  F.

Approved:

B. T. GALLOWAY,  
*Chief of Bureau.*

MARCH 2, 1909.